

EPA Regulations – Higher Costs and Uncertainty on Manufacturing Competitiveness and Jobs

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Summary

- ❑ EPA regulations significantly raise costs and uncertainty – **prevents investment in existing and new facilities**
- ❑ EPA regulations drive fuel switching from coal to natural gas – **raising consumer concern of higher electricity and natural gas costs and reliability issues**
- ❑ Manufacturing jobs depends upon **globally competitive natural gas and electricity prices**



Mfg'ing - Confronted with unprecedented regulatory costs

- ❑ EPA Industrial Boiler MACT (Maximum Achievable Control Technology)
- ❑ EPA GHG Tailoring rule (MACT)
- ❑ EPA new SO_x and NO_x NAAQS
- ❑ EPA reconsideration of 2008 Ozone NAAQS
- ❑ EPA reconsideration of 2007 PM NAAQS
- ❑ EPA Clean Air Act regulations on electric power generators



All regulations are on
fossil fuel combustion
facilities...

**BUT... MANUFACTURING
MUST BE GLOBALLY
COMPETITIVE TO GROW!**



EPA Industrial Boiler MACT

As proposed:

- ❑ High capital costs of compliance – No ROI
- ❑ Increased annual operating costs
- ❑ Increased energy consumption
- Compliance drives fuel switching from coal to natural gas – Loss of existing investment in coal burning facilities
- Threatens shut down of cogeneration facilities



Real Examples: Capital costs

- ❑ Food processor: \$7.5 million cost: will shut down co-gen unit.
- ❑ Chemical company: \$600 million cost
- ❑ Paper company: \$48.5 million
- ❑ Food processor: \$41 million
- ❑ Chemical company: \$97 million
- ❑ Paper Company: \$100 million



EPA GHG Tailoring Rule

Results in:

- ❑ Fear of triggering means mfg'ing will not invest in new facilities
- ❑ Requires MACT on energy efficiency on “entire” facility (not just the new unit).
- ❑ Deep concern that it will “limit” manufacturing product production rates...




















What is at Stake?

ECONOMIC GROWTH!

The Importance of Energy Price

Sensitive Industries

Industries	Convert to	Commercial & Consumer Products
 <ul style="list-style-type: none"><input type="checkbox"/> Chemicals<input type="checkbox"/> Plastics	 	<ul style="list-style-type: none"><input type="checkbox"/> Detergents<input type="checkbox"/> Automobiles
 <ul style="list-style-type: none"><input type="checkbox"/> Fertilizer		<ul style="list-style-type: none"><input type="checkbox"/> Computers
 <ul style="list-style-type: none"><input type="checkbox"/> Glass / ceramics<input type="checkbox"/> Brick	 	<ul style="list-style-type: none"><input type="checkbox"/> Construction<input type="checkbox"/> Medical Supplies
 <ul style="list-style-type: none"><input type="checkbox"/> Steel<input type="checkbox"/> Aluminum		<ul style="list-style-type: none"><input type="checkbox"/> Paint
 <ul style="list-style-type: none"><input type="checkbox"/> Pulp and Paper		<ul style="list-style-type: none"><input type="checkbox"/> Pharmaceuticals
 <ul style="list-style-type: none"><input type="checkbox"/> Cement<input type="checkbox"/> Food Processing	 	<ul style="list-style-type: none"><input type="checkbox"/> Cosmetics<input type="checkbox"/> Telecommunication
		<ul style="list-style-type: none"><input type="checkbox"/> Food Production



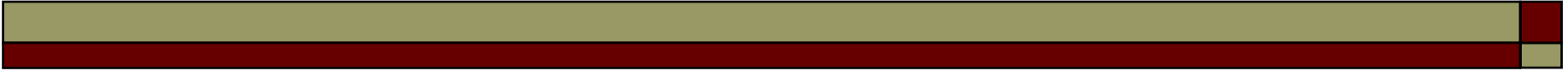
Industrial Products are Essential to Economic Growth

- ❑ The aerospace/defense industry uses steel, aluminum, plastics and chemicals.
- ❑ The air transport industry uses steel, aluminum, plastics and chemicals.
- ❑ The auto and truck industries use steel, aluminum, plastics, chemicals.
- ❑ The beverage industry uses aluminum, steel, paper, glass and plastic.
- ❑ The biotechnology industry uses chemicals.
- ❑ The commercial and home building construction industry uses brick, steel, aluminum, wood, cement and glass.
- ❑ The oil and gas industry uses steel, chemicals, cement.
- ❑ The chemical industry uses chemicals, steel, cement and glass.
- ❑ The computer industry uses plastics, chemicals, and glass.
- ❑ The electrical equipment industry uses steel.
- ❑ The electric and gas utility sector uses steel and cement.
- ❑ The food industry uses fertilizer, chemicals, plastics and paper.



Industrial Products are Essential to Economic Growth

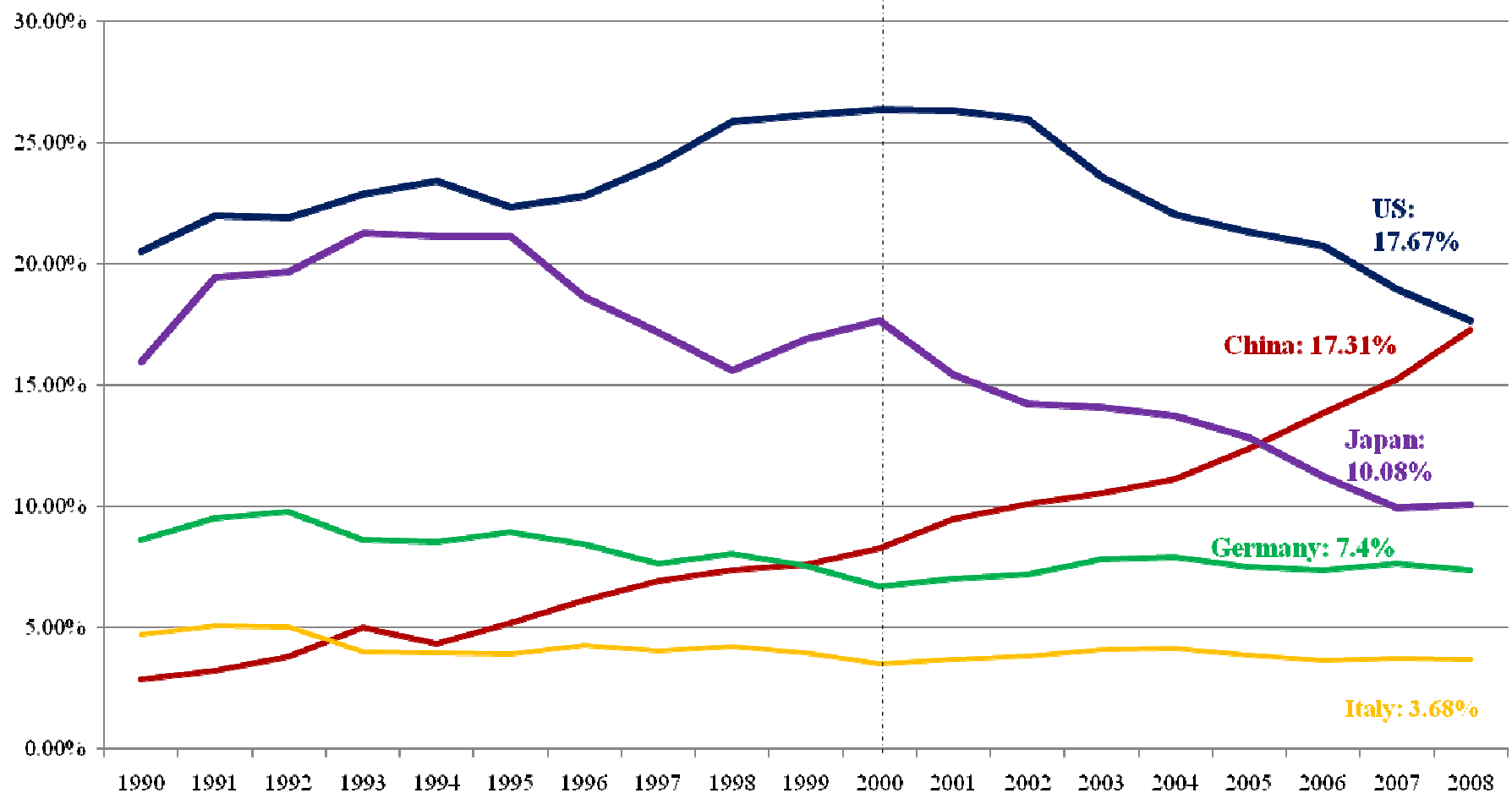
- ❑ The home furnishing industry uses wood, glass, chemicals.
- ❑ The heavy construction industry uses steel and rubber.
- ❑ The home appliance industry uses steel, aluminum, glass and wood.
- ❑ The household products industry uses chemicals, plastic; paper, glass.
- ❑ The machinery industry uses steel, chemicals and plastics.
- ❑ The maritime industry uses steel.
- ❑ The packaging industry uses plastics, paper, aluminum and steel.
- ❑ The paper / forest products industry uses steel and chemicals.
- ❑ The refining industry uses steel, chemicals and cement.
- ❑ The pharmaceutical industry uses chemicals, glass and steel.
- ❑ Railroads use steel.
- ❑ The toiletries/cosmetics industry uses chemicals, plastics, paper, and glass.



Since 2000, mfg'ing
sector has been in
decline...

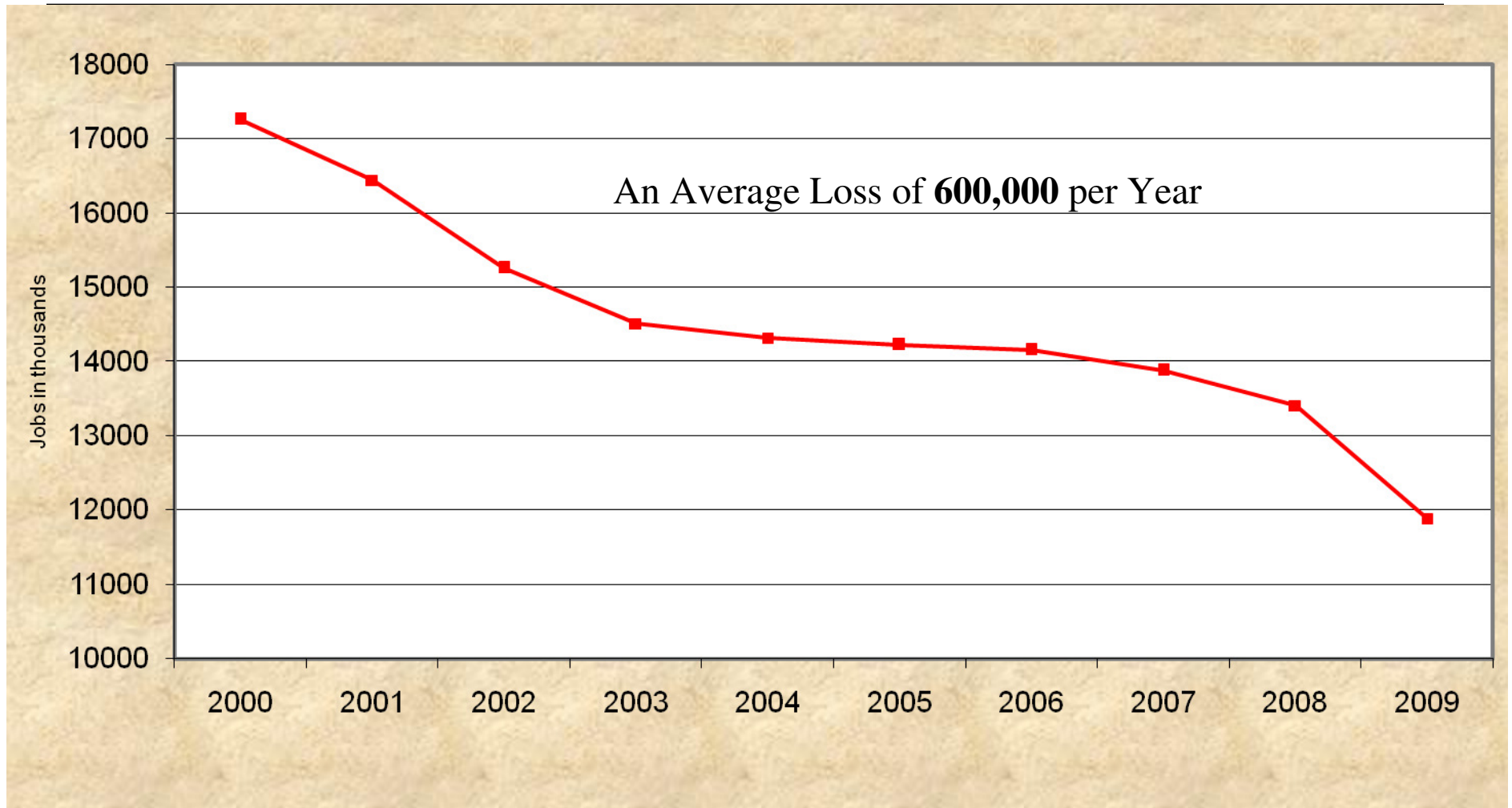
The United States ~~is~~ was the World's Largest Manufacturer

(Top 5 Manufacturing nations made up 55 % of Manufacturing Value)



Source: United Nations, IECA Calculations

5.4 Million Manufacturing Jobs (31%) Lost



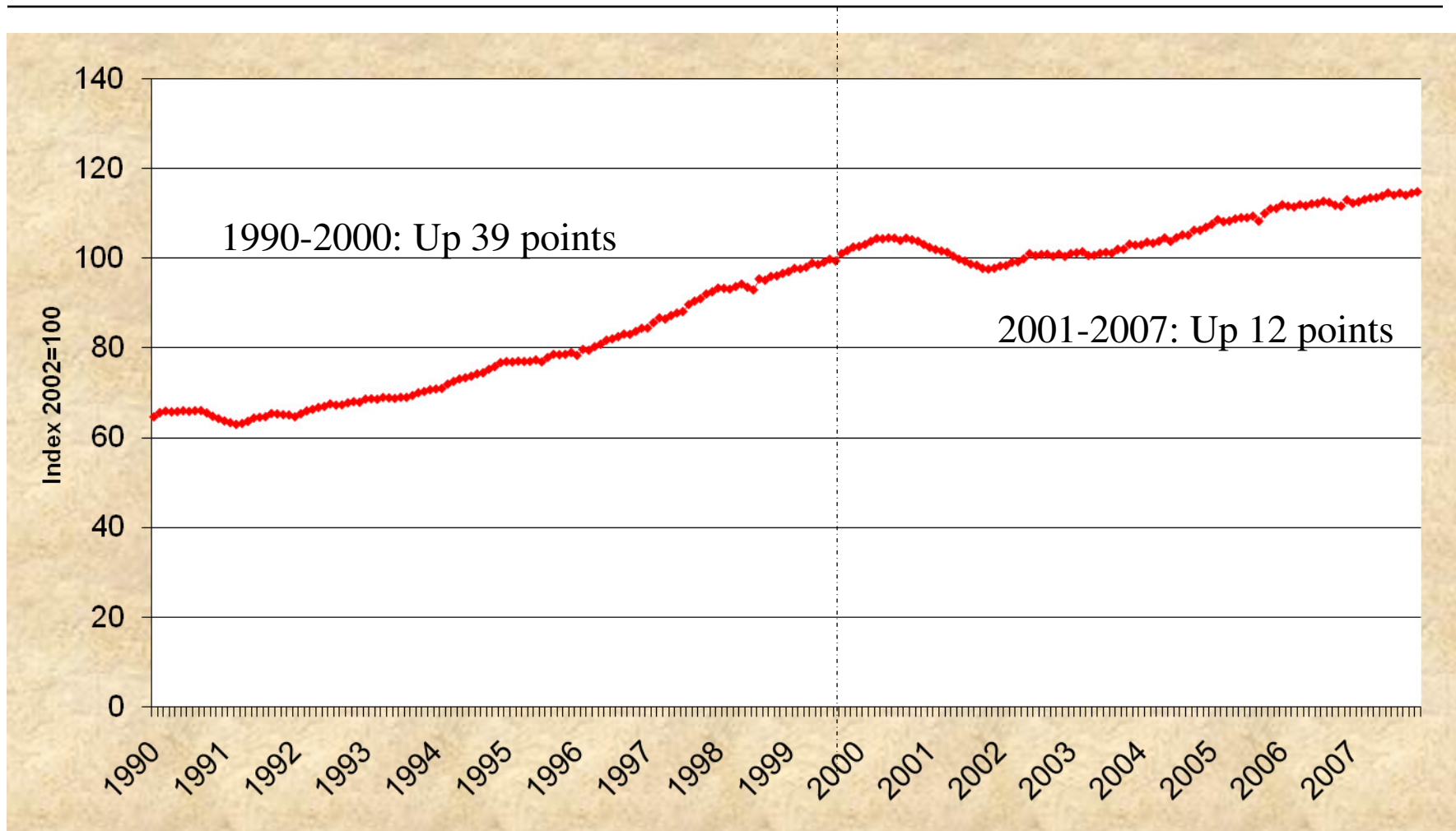
Source: Bureau of Labor Statistics



Job Losses

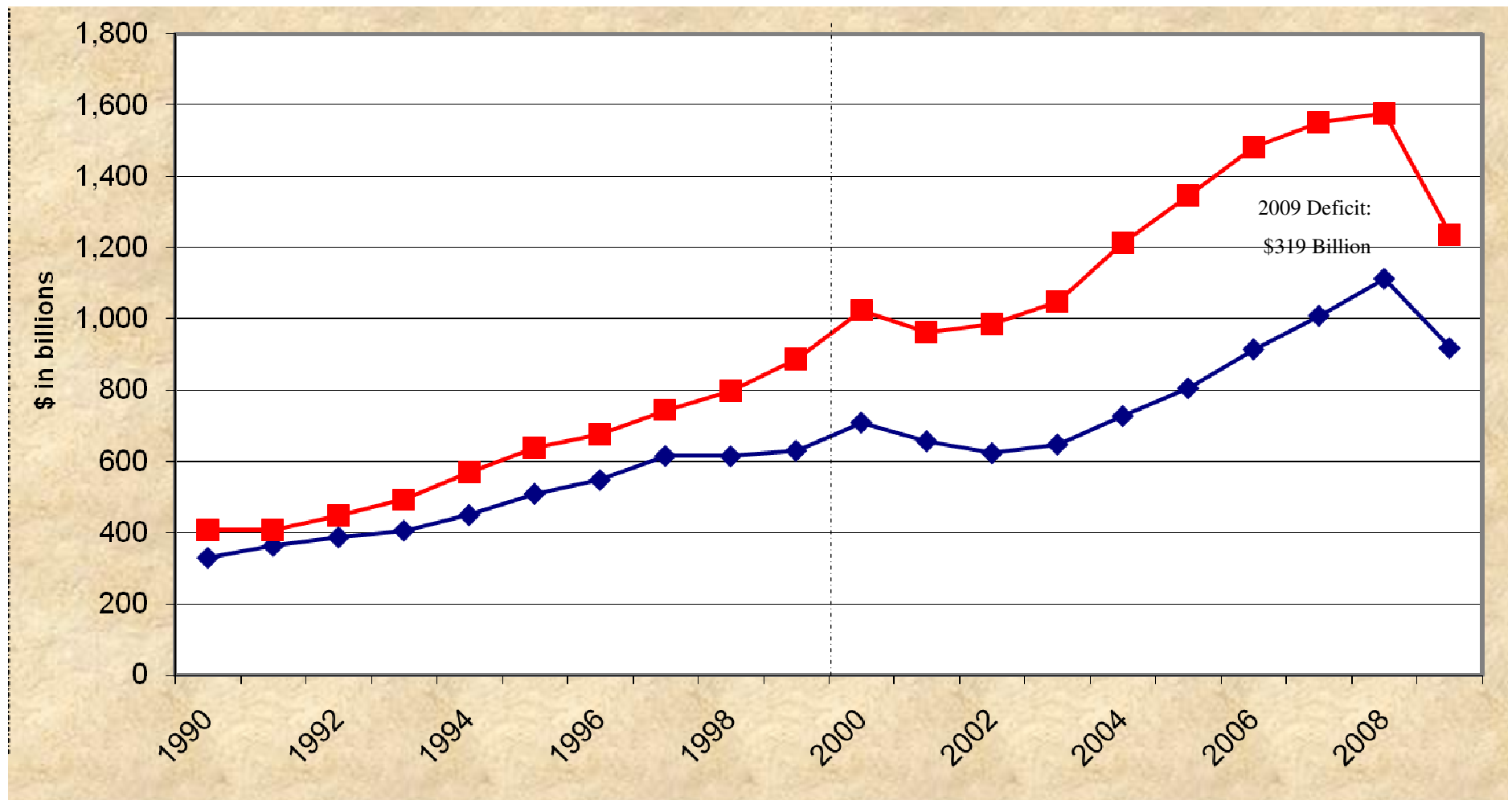
- ❑ Each manufacturing job creates three non-manufacturing jobs.
- ❑ A loss of 5.4 million manufacturing jobs translates into an additional 16.2 million non-manufacturing **job losses...total of 21.6 million!!**

Pre-Crisis Real Industrial Output Growth Had Slowed 68% Since 2000



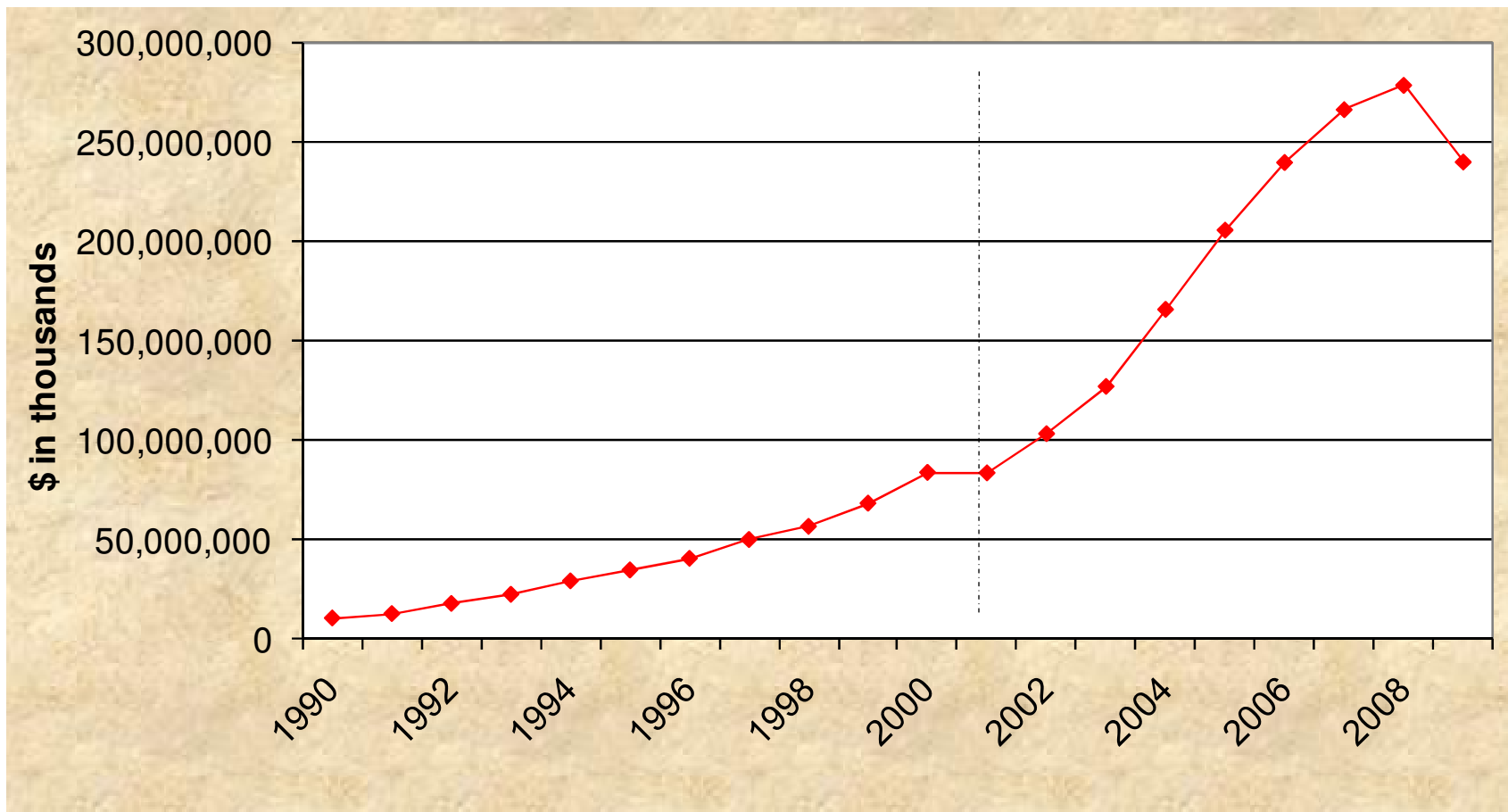
Source: Bureau of Economic Analyses

Imports Exceeded Exports by an average of 53% 2000-2009



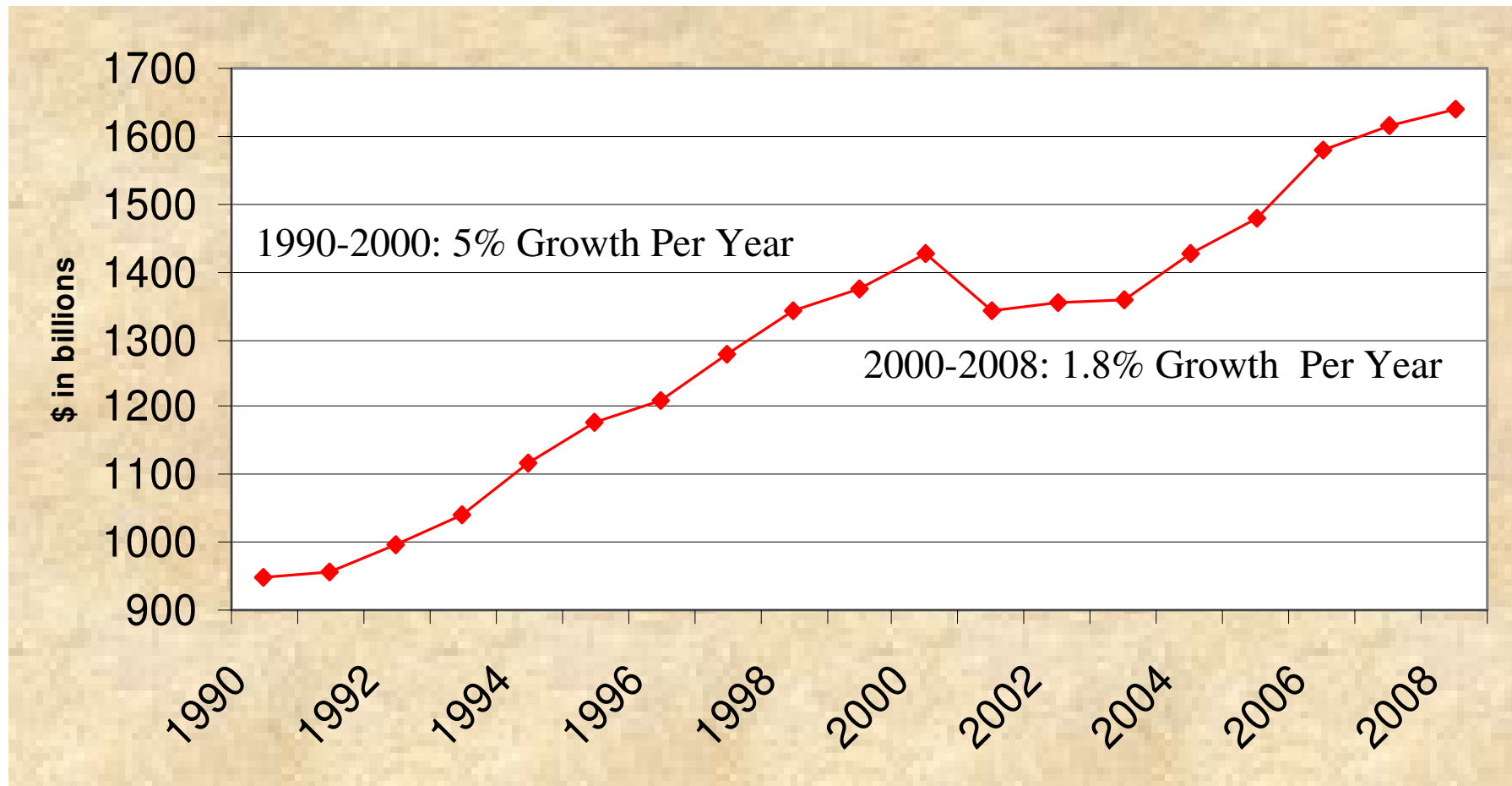
Source: Department of Commerce

Cumulative U.S.- China Manufacturing Trade Deficit – \$1.8 Trillion Since 1990



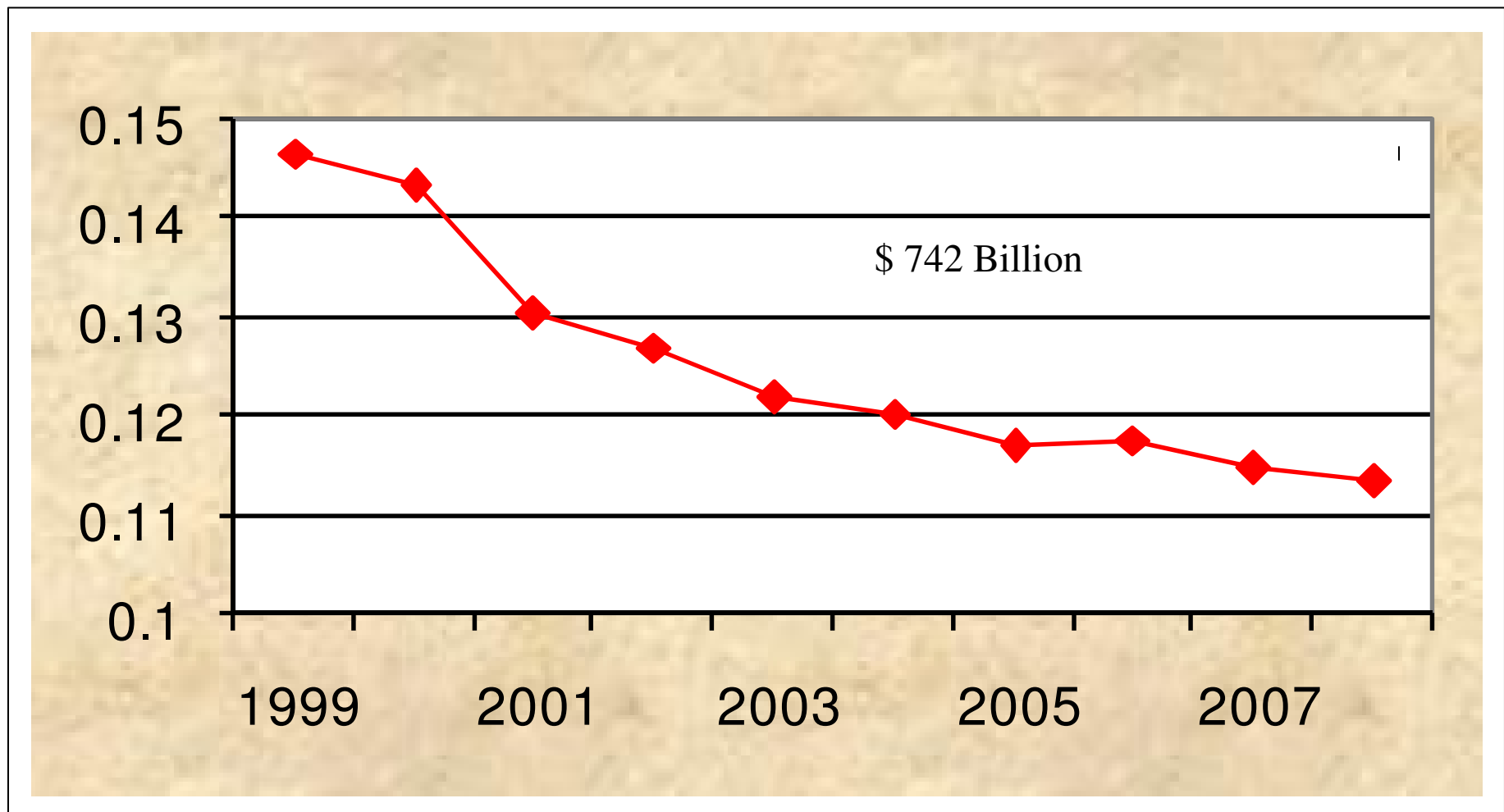
Source: Department of Commerce

Manufacturing Value Added Contributions Have Slowed By 64%



Source: Bureau of Economic Analysis

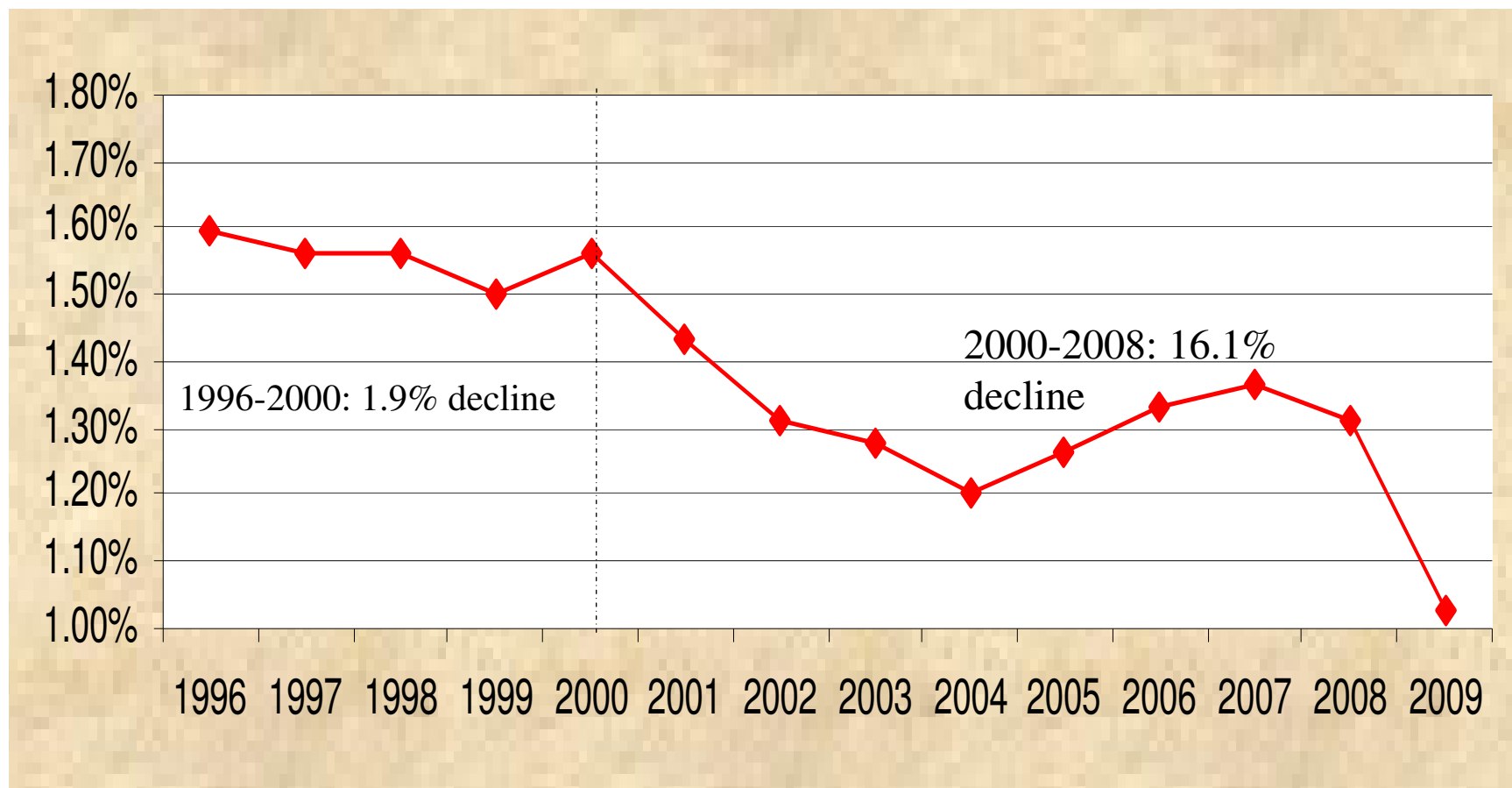
Manufacturing Value Added as a Percentage of GDP Fell By \$742 Billion



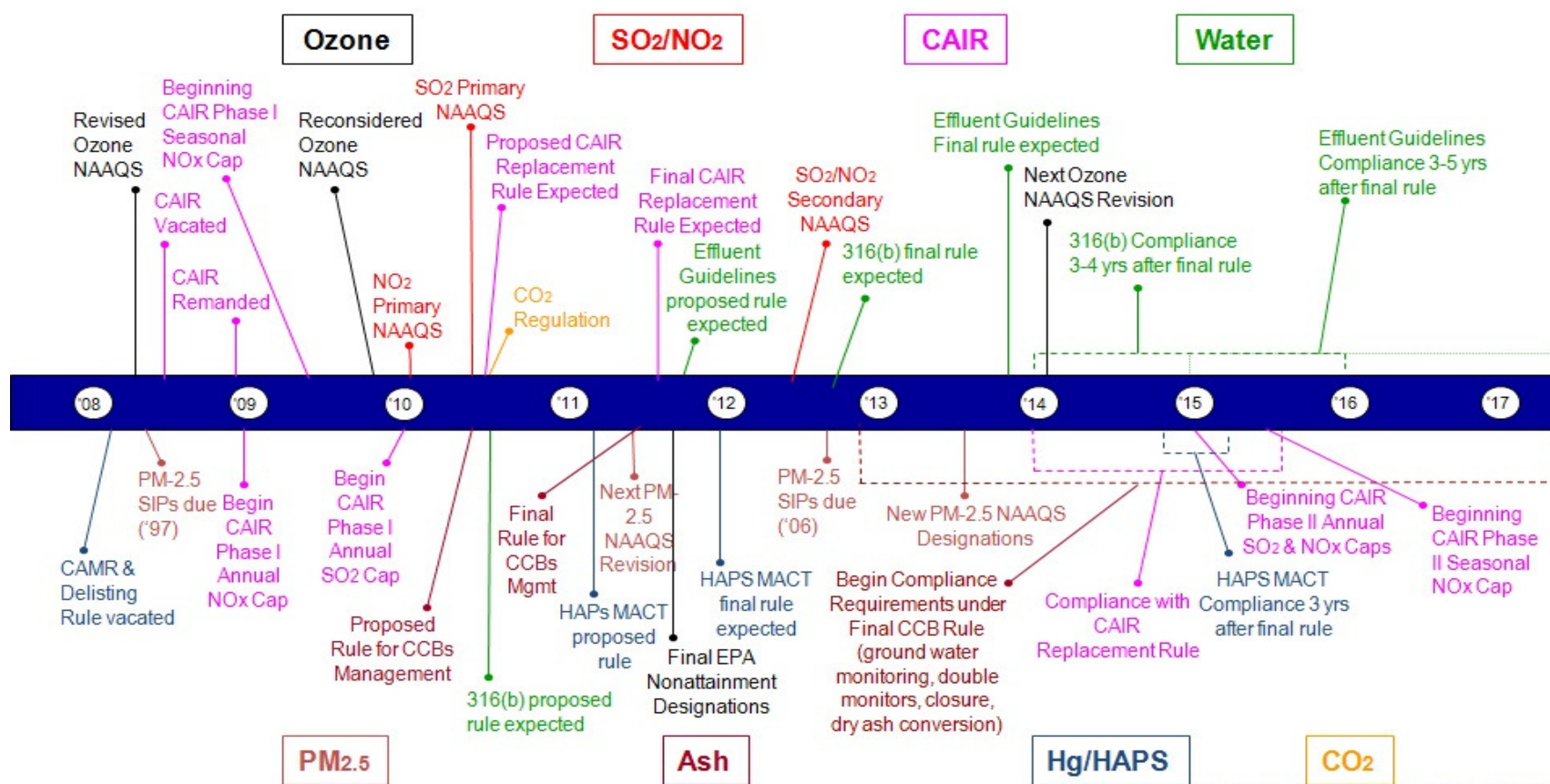
Source: Bureau of Economic Analysis

Investment in Industrial Equipment as Share of Real GDP Fell by 18% and is Accelerating

(Chained 2005 Dollars)



Many EPA Rules Driving Utilities to Fuel Switch to Gas for Baseload Power



— adapted from Wegman (EPA2003) Updated 2.15.10

EPA CAA regulations on power plants...

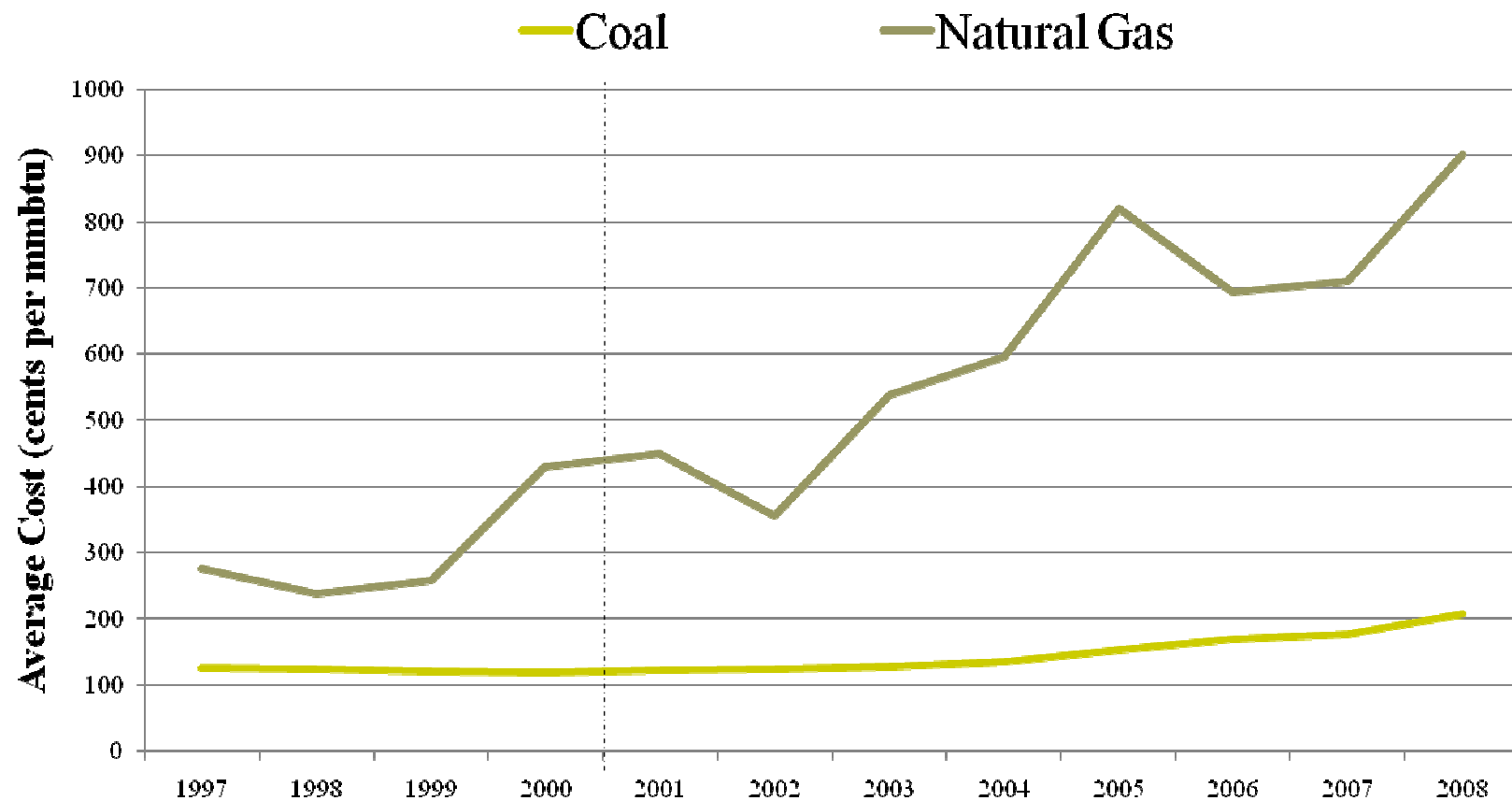
**“ALL COSTS ARE PASSED ONTO THE
CONSUMER.”**



EPA CAA Regulations

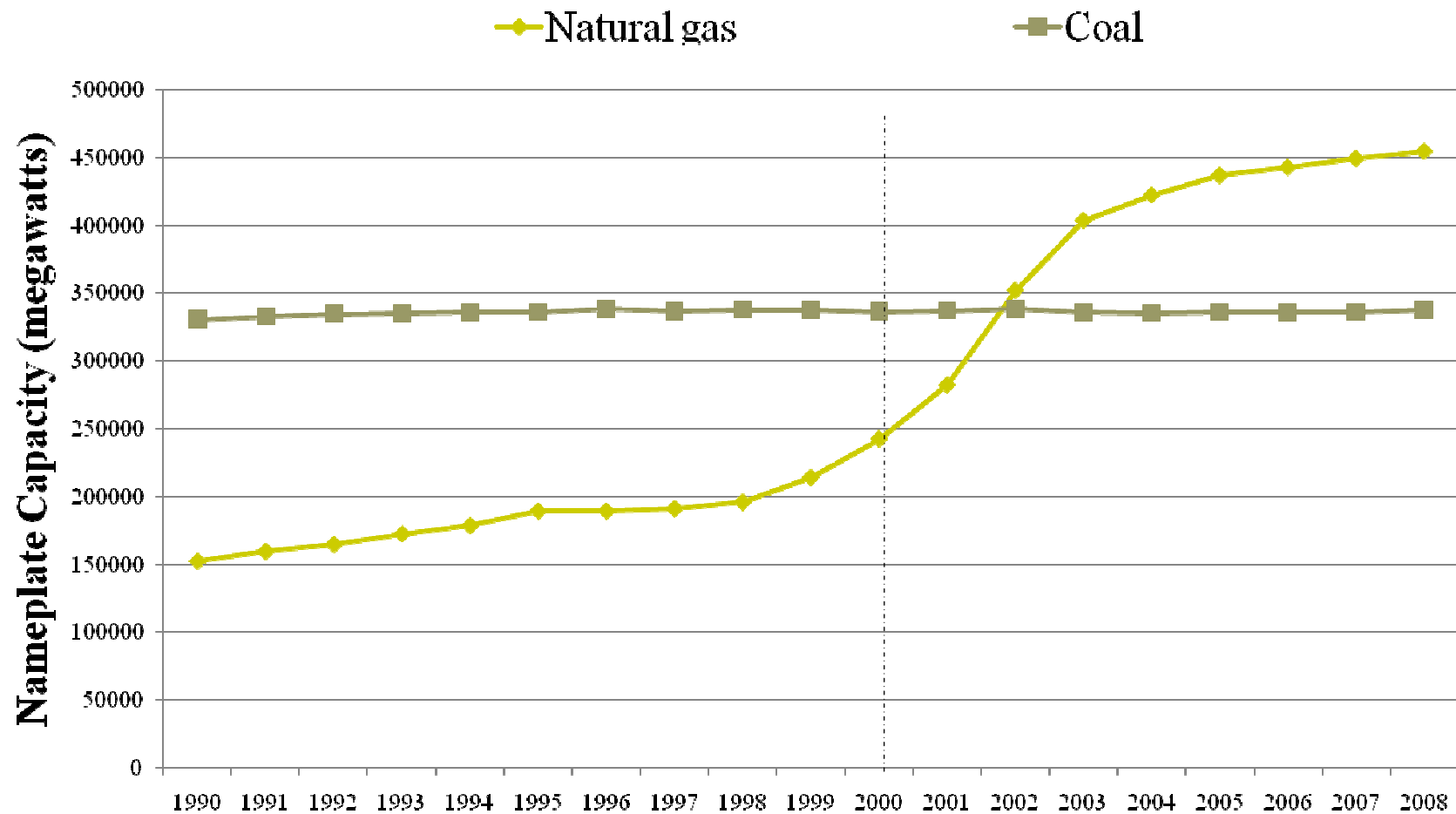
- ❑ Increased regulatory costs put existing low cost older coal-fired units in jeopardy and prevents new builds
- ❑ Results in escalating increases in demand for natural gas
- ❑ In a growing portion of US, **natural gas fired power generation sets the marginal price of electricity. If natural gas prices rise...so does the price of electricity**

Cost of Fuels to Electric Power Sector (EIA)



Source: Energy Information Administration

Electric Power- nameplate capacity



Source: Energy Information Administration

Natural Gas Consumption by End Use (trillion cubic feet)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	Difference
<i>Total Consumption</i>	22.2	23.0	22.4	22	22.2	21.7	23	23.2	22.8	2.7%
<i>Residential</i>	4.8	4.9	5.1	4.9	4.8	4.4	4.7	4.9	4.8	-2%
<i>Commercial</i>	3.0	3.1	3.2	3.1	3.0	2.8	3.0	3.1	3.1	0%
<i>Industrial</i>	7.3	7.5	7.2	7.2	6.6	6.6	6.6	6.6	6.1	-16.4%
<i>Electric Power</i>	5.3	5.7	5.1	5.5	5.9	6.2	6.8	6.6	6.8	28%

Source: Energy Information Administration



Reliability Issue: North America Electric Reliability Corporation

- ❑ Mission – to ensure reliability of the bulk power system
- October, 2010 – “Resource Adequacy Impacts of Potential U.S. Environmental Regulations”



Reliability: NERC Study results...

- “Assessment show a significant potential impact to reliability should the four EPA rules be implemented as proposed.”
- “Reduced Planning Reserve Margins are a result of a loss of up to 19 percent of fossil fuel-fired steam capacity in the United States by 2018.”



Thank you
